

PLANNED THEORY SYLLABUS COVERAGE

GPB		Department: Electrical Engg.			Subject: FEE	
		Sem. & Branch: 3rd & EE			Duration : 3 Years	
SYLLABUS COVERAGE		Total Periods: Theory: 70 Practical: 28				
Sr No	Period Nos	Topic	Details	Instruction Reference	Additional Study Recommended	Remarks
1	5(1-5)	Basic Electrical Concepts	Basic Electrical Terminologies: Potential Difference (Voltage), Charge, Current, Resistance, Power & Energy-Their definition, units and their interrelation with each other.	Fundamentals of Electrical Engineering by Sahdev, Unique International Publication, Jalandhar.	Electrical Science by S. Chandni, R Chakrabarti and P K Chattopadhyay. Narosa Publishing House Pvt. Ltd., New Delhi	
2	12(6-17)	DC Circuits	-Ohm’s law, Resistances in Series and Parallel, Voltage & Current Divider Rules -Effect of temperature on resistance, temperature coefficient of resistance, Resistivity. -Kirchhoff’s Laws and their applications in solving Electrical Network Problems. -Network Theorems: Thevenin’s theorem, Norton’s theorem, Superposition theorem, Maximum Power Transfer theorem			
3	8(18-25)	Electrostatics	-Concept of Capacitance, Capacitor, Dielectric, Factors affecting Capacitance of a Capacitor. -Capacitance of Parallel plates Capacitor & Cylindrical Capacitor. -Grouping of Capacitors, Charging and Discharging of Capacitor, Time Constant, Energy Stored in a capacitor.			

Sr No	Period Nos	Topic	Details	Instruction Reference	Additional Study Recommended	Rem		
4	7(26-32)	Batteries	<ul style="list-style-type: none"> -Working Principle, Construction and Applications of Lead acid, Nickel-Cadmium, Silver Oxide, and Li-ion Batteries -Charging methods used for Lead acid battery. -Care and maintenance of a Lead acid battery, testing of battery -Grouping of cells in series and parallel (simple numerical problems). 	Electrical Science by V.K. Mehta, S Chand and Co., New Delhi	Electrical Science by S. Chandni, R Chakrabarti and P K Chattopadhyay, Narosa Publishing House Pvt. Ltd., New Delhi			
5	10(33-42)	Electromagnetism	<ul style="list-style-type: none"> -Introduction to Electromagnetism: Magnetic effect of electrical current MMF, Magnetic Flux, Reluctance, Permeability, Magnetic flux density (B), Magnetic field intensity (H), Analogy between Electric and Magnetic circuits. -Cross and Dot Convention, Right Hand thumb rule and Cork screw rule, Nature of magnetic field around straight current carrying conductor, Concepts of Solenoid and Torroid. -Force on a Conductor placed in the Magnetic field, Force between two Parallel current carrying conductors. -Series & Parallel Magnetic circuits, Numerical problems on magnetic circuits. -Concept of Hysteresis loop (B-H Curve) and Hysteresis loss. 					
6	7(43-51)	Electromagnetic Induction	<ul style="list-style-type: none"> -Faraday's Laws of electromagnetic induction. -Lenz's law. -Fleming's Right and Left Hand Rule. -Principle of self and mutual induction. -Principle of Self and mutually induced e.m.f. and simple numerical problems -Inductances in Series and Parallel. -Energy stored in a magnetic field. -Concept of Eddy current. Eddy current losses. 					

Sl. No	Code Nos	Topic	Details	Instruction Reference	Additional Study Recommended	Remarks
1	7(52-70)	A.C. Circuits	<ul style="list-style-type: none"> -Concept of alternating current/EMF generation. Equation of instantaneous values of alternating current and voltage. -AC terms: Cycle, Amplitude, Time period, Frequency. Instantaneous values, RMS value, Average value, Form factor, Peak factor. Numerical -Representation of alternating sinusoidal quantities by vectors. -Phasor algebra (addition, subtraction of complex quantities). -AC through pure resistance, inductance and capacitance. -Alternating voltage applied to RL, RC and RLC Series circuits (impedance triangle, phasor diagram and their solutions). -Power in pure resistance (R), inductance (L), capacitance (C), RL, RC, and RLC circuits. -Concept of Susceptance, Conductance and Admittance. -Active and reactive components of current and their significance. -Power factor and its practical significance, -Resonance in series and parallel circuits, Quality factor, Numerical. 	Principles of Electrical Engineering by BR Gupta, S Chand & Co., New Delhi.	Electrical Science by S. Chandni, R Chakrabarti and P K Chattopadhyay. Narosa Publishing House Pvt. Ltd., New Delhi	

APPROVED	SIGN HOD/OIC
DATE <u>31/08/2022</u>	